



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,382	08/20/2004	Lars-Gunnar Hedstrom	P/1228-186	5175

2352 7590 03/24/2006

OSTROLENK FABER GERB & SOFFEN  
1180 AVENUE OF THE AMERICAS  
NEW YORK, NY 100368403

EXAMINER

LE, DAVID D

ART UNIT	PAPER NUMBER
----------	--------------

3681

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/505,382	HEDSTROM, LARS-GUNNAR	
	<b>Examiner</b>	<b>Art Unit</b>	
	David D. Le	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>08/20/04</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This is the first Office action on the merits of Application No. 10/505,382, filed on 20 August 2004. Claims 1-20 are pending.

### **Documents**

The following documents have been received and filed as part of the patent application:

- Priority Document, received on 08/20/04
- Information Disclosure Statement, received on 08/20/04

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

#### **Claims 1-10 and 16-17:**

##### ***a. Claim 1:***

- i. The present claim 1 does not appear to properly define the claimed arrangement for allowing disengagement of a gear. It is not clear which recited element(s) of the vehicle is considered as part(s) of the claimed arrangement for allowing disengagement of a gear in a gearbox, as presently recited in the claim.

ii. Lines 16-17 recite the limitation “a mutual angle between the position of the first portion and the position of the second portion when a gear is engaged in the gearbox”. It is unclear whether the claimed “mutual angle” being the angle that is established by the position of the first portion and the position of the second portion or the rotational difference between the rotational position of the first portion and the rotational position of the second portion, as recited in the claim.

iii. Line 17 recites the limitation “a gear”. It is unclear whether this newly recited limitation “a gear” is different from the one, which is first recited on line 1 of the claim.

iv. Lines 18-20 recite the limitation “to initiate a control action so that the mutual angle between the first portion and the second portion is rectified before the gear is disengaged”. It is unclear what applicant is referring to by the term “rectified”, as recited in the claim.

*b. Claim 5:*

Line 4 recites the limitation “the rotational position”. There is insufficient antecedent basis for this limitation in the claim.

*c. Claim 6:*

Line 3 recites the limitation “the speed”. There is insufficient antecedent basis for this limitation in the claim.

*d. Claim 7:*

Line 4 recites the limitation “the rotational position”. There is insufficient antecedent basis for this limitation in the claim.

*e. Claim 8:*

Line 3 recites the limitation “the speed”. There is insufficient antecedent basis for this limitation in the claim.

*f. Claim 9:*

i. Line 3 recites the limitation “the output torque”. There is insufficient antecedent basis for this limitation in the claim.

ii. Line 5 recites the limitation “a gear”. It is unclear whether this newly recited limitation “a gear” is different from the one, which is first recited on line 1 of claim 1.

*g. Claim 10:*

Line 4 recites the limitation “the engaged gear”. There is insufficient antecedent basis for this limitation in the claim.

*h. Claim 17:*

Line 3 recites the limitation “the engaged gear”. There is insufficient antecedent basis for this limitation in the claim.

Claims 11-15 and 18-20:

*a. Claim 11:*

- i. Line 2 recites the limitation “a gearbox”. It is unclear whether this newly recited limitation “a gearbox” is different from the one, which is first recited on line 1 of the claim.
- ii. Line 14 recites the limitation “a gear”. It is unclear whether this newly recited limitation “a gear” is different from the one, which is first recited on line 1 of the claim.
- iii. Lines 12-14 recite the limitation “a mutual angle between the position of the first driveline portion and the position of the second driveline portion when a gear is engaged in the gearbox”. It is unclear whether the claimed “mutual angle” being the angle that is established by the position of the first driveline portion and the position of the second driveline portion or the rotational difference between the rotational position of the first driveline portion and the rotational position of the second driveline portion, as recited in the claim.
- iv. Lines 15-16 recite the limitation “initiating a control action so that the mutual angle between the first and the second driveline portions is rectified before the gear is disengaged”. It is unclear what applicant is referring to by the term “rectified”, as recited in the claim.

*b. Claim 12:*

Line 3 recites the limitation “the rotational position”. There is insufficient antecedent basis for this limitation in the claim.

*c. Claim 13:*

i. Line 3 recites the limitation “the second position”. There is insufficient antecedent basis for this limitation in the claim.

ii. Lines 3-4 recite the limitation “the rotational position”. There is insufficient antecedent basis for this limitation in the claim.

*d. Claim 14:*

Line 2 recites the limitation “the output torque”. There is insufficient antecedent basis for this limitation in the claim.

*e. Claim 15:*

Line 3 recites the limitation “the engaged gear”. There is insufficient antecedent basis for this limitation in the claim.

*f. Claim 18:*

i. Lines 4-5 recite the limitation “the position of the first component”. There is insufficient antecedent basis for this limitation in the claim.

ii. Line 6 recites the limitation “the position of the second component”.

There is insufficient antecedent basis for this limitation in the claim.

*g. Claim 19:*

Line 3 recites the limitation “the rotational position”. There is insufficient antecedent basis for this limitation in the claim.

*h. Claim 20:*

Line 2 recites the limitation “the engaged gear”. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

5. **Claims 11-15 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 5,980,424 to Huber et al.**

#### **Claims 11-15 and 18-20:**

**Huber** (Figs. 1-3; column 2, line 45 – column 5, line 6) discloses a torque control method for a vehicle driveline (i.e., Fig. 1, element 20) comprising:

- a. An engine (i.e., Fig. 1, element 22);
- b. A master clutch (i.e., Fig. 1, element 30);



- c. A multi-speed transmission (i.e., Fig. 1, element 24);
- d. A plurality of gears in the transmission (i.e., Fig. 1);
- e. A controller (i.e., Fig. 1, element 40) for controlling both the engine and the transmission;
- f. A plurality of sensors (schematically illustrated at 44 of Fig. 1) for detecting and providing information regarding the engine rotational speed, the transmission input and output speeds (i.e., column 3, lines 1-7);
- g. Wherein the driveline includes a first driveline portion which extends from the engine to the master clutch and a second driveline portion which extends from the master clutch to at least one powered wheel of a vehicle (i.e., Fig. 1);
- h. Wherein the master clutch is capable of being adapted to allow elastic rotation between the first and second portions of the driveline when driving torque is being transmitted in the driveline;
- i. Wherein the method includes the steps of:
  - i. Detecting a position of the first portion of the driveline (i.e., being the engine speed sensor that conventionally detects the rotational speed of the flywheel for determining the engine output torque);
  - ii. Detecting a position of the second portion of the driveline (i.e., being the transmission input/output speed sensors that conventionally detect the rotational speed of the transmission input shaft and the transmission output shaft for determining the transmission gear ratios or torque);

- iii. Storing at least one measured value which is related to a mutual angle (i.e., being the engine and the transmission speeds, which have been interpolated in terms of torque) between the position of the first driveline portion and the position of the second driveline portion when the gear is engaged (i.e., Figs 2-3; column 3, line 1 – column 5, line 6);
- iv. Initiating a control action so that the mutual angle between the first and second driveline portions is rectified before the gear is disengaged (i.e., column 3, line 1 – column 5, line 6);
- j. Wherein the first driveline portion inherently includes a flywheel and the method further comprises the step of:
  - v. Detecting a first parameter of the first portion which is related to the rotational position of the flywheel (the engine speed sensor conventionally detects the rotational speed/position of the engine flywheel);
- k. Wherein the second driveline portion has an output shaft (i.e., Fig. 1, element 36), and the method further comprises the step of:
  - vi. Detecting a second parameter of the second position which is related to the rotational position of the output shaft (the transmission speed sensor conventionally detects the rotational position of the transmission output shaft for determining the corresponding transmission gear ratios);
- l. Wherein the method further includes the step of:

- vii. Controlling the output torque of the engine for rectifying a mutual angle between the first and second driveline portions (i.e., Figs. 2 and 3; column 3, line 1 – column 5, line 6); and
- viii. Activating a gearchange mechanism for disengaging the engaged gear when the mutual angle between the first and the second driveline has been rectified (i.e., column 3, lines 23-36).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-10 and 16-17, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber et al. in view of U. S. Patent No. 4,601,676 to Tojima et al.**

**Claims 1-10 and 16-17:**

**Huber** (Figs. 1-3; column 2, line 45 – column 5, line 6) discloses a torque control method for a vehicle driveline (i.e., Fig. 1, element 20) comprising:

- a. An engine (i.e., Fig. 1, element 22) inherently including a flywheel;
- b. An engine output shaft (i.e., Fig. 1, element 26);
- c. A master clutch (i.e., Fig. 1, element 30);

- d. A multi-speed transmission (i.e., Fig. 1, element 24) having a transmission output shaft (i.e., Fig. 1, element 36;
- e. A plurality of gears in the transmission (i.e., Fig. 1);
- f. A controller (i.e., Fig. 1, element 40) for controlling both the engine and the transmission;
- g. A plurality of sensors (schematically illustrated at 44 of Fig. 1) for detecting and providing information such as the engine rotational speed, the transmission input and output speeds (i.e., column 3, lines 1-7);
- h. A gearchange mechanism (i.e., Fig. 1, generally shown at element 32 and its related components)
- i. Wherein the driveline includes a first driveline portion which extends from the engine to the master clutch and a second driveline portion which extends from the master clutch to at least one powered wheel of a vehicle (i.e., Fig. 1);
- j. Wherein the master clutch is capable of being adapted to allow elastic rotation between the first and second portions of the driveline when driving torque is being transmitted in the driveline;
- k. Wherein a first sensor (i.e., being the engine rotational speed sensor) of the plurality of sensors is operable to detect the rotational position of the first driveline portion and a second sensor (i.e., being the transmission output speed sensor) of the plurality of sensors is operable to detect the rotational position of the second driveline portion (i.e., column 3, lines 1-7);

- l.       Wherein the flywheel on the first driveline portion and the first sensor conventionally detects a rotational position of the flywheel;
- m.       Wherein the controller is operable to store at least one measured value which is related to a mutual angle between the position of the first driveline portion and the position of the second driveline portion when a gear is engaged (i.e., Figs. 2 and 3; column 3, line 24 – column 5, line 6; being the torque element, which relates to the detected engine speed and transmission speeds);
- n.       Wherein the controller is operable to initiate a control action so that the mutual angle between the first and second driveline portions is rectified before the gear is disengaged (i.e., column 3, line 1 – column 5, line 6);
- o.       Wherein the first sensor is an engine speed sensor (i.e., column 3, lines 1-2);
- p.       Wherein the transmission output shaft is in the second driveline portion and the second sensor conventionally detects a rotational position of the transmission output shaft as the vehicle speed (i.e., column 3, lines 4-7);
- q.       Wherein the controller is operable to initiate control of the output torque of the engine for rectifying the mutual angle between the first and second driveline portions before the gear is disengaged (i.e., column 3, lines 1-22); and
- r.       Wherein the controller is operable to activate the gearchange mechanism for disengaging the engaged gear when the mutual angle between the first and second driveline portions has been rectified (i.e., column 3, line 1 – column 5, line 6).

**Huber** does not explicitly disclose or lacks the followings:

- a. A clutch disc;
- b. A clutch hub connected to one of the first and second driveline portions;
- c. A peripheral portion of the clutch disc around the clutch hub;
- d. Wherein the clutch disc is operable to allow elastic rotation between the hub and the peripheral portion of the clutch disc; and
- e. Wherein the clutch allows elastic rotation of at least  $\pm 8$  degrees.

**Tojima** (i.e., Figs. 1-6; column 1, line 64 – column 4, line 2), on the other hand, teaches a clutch disc comprising:

- a. A flywheel (i.e., column 2, line 66);
- b. A clutch hub (i.e., Fig. 1, element 1);
- c. A clutch peripheral portion round the clutch hub (i.e., Fig. 1);
- d. Wherein the clutch disc is operable to allow elastic rotation between the hub and the peripheral portion (i.e., column 2, line 64 – column 3, line 27); and
- e. Wherein the clutch allows elastic rotation at least  $\pm 8$  degrees (i.e., Fig. 5; column 3, lines 25-26).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify Huber such that clutch 30 is the damper disc type clutch, in view of Tojima, in order to effectively absorb torque vibrations in the vehicle driveline (i.e., Tojima, column 3, line 61 – column 4, line 2).

### *Conclusion*

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

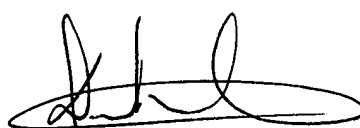
- Hedstrom et al. (U. S. Patent No. 5,595,551) teaches a method for controlling engine torque during gear changing, as shown in Fig. 1.
- Bockmann et al. (U. S. Patent No. 6,145,399) teaches a shift by wire vehicle transmission, as shown in Fig. 1.
- Genise et al. (U. S. Patent No. 6,461,274) teaches an automated transmission system control with zero engine flywheel torque determination.
- Genise et al. (U. S. Patent No. 6,962,551) teaches an automated transmission system control with zero engine flywheel torque determination.
- Soderman (U. S. Patent No. 5,866,809) teaches a process for correcting engine torque during gear changes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'D. Le', enclosed within a horizontal oval shape.

David D. Le  
Examiner  
Art Unit 3681  
03/22/06

ddl